

# ANTENNA INFORMATION

|                                                           |                                                    |                    |
|-----------------------------------------------------------|----------------------------------------------------|--------------------|
| OEM                                                       | Lenovo                                             |                    |
| ODM                                                       | Compal Electronics Inc.                            |                    |
| Platform model name                                       | IdeaPad 5 2-in-1 15AGP11, IdeaPad 5 2-in-1 15AHP11 |                    |
| Intel platform (ex: Yes, No or NA)                        | No                                                 |                    |
| Platform type (ex: regular NB, convertible PC, AIO...etc) | Convertible NB                                     |                    |
| SAR minimum separation (mm)                               | FCC (1g)                                           | 8.35 mm (w/bumper) |
|                                                           | ISED (1g)                                          | 8.35 mm (w/bumper) |
|                                                           | ISED (10g)                                         | 5 mm               |

|                      |                 |                                                                                                               |
|----------------------|-----------------|---------------------------------------------------------------------------------------------------------------|
| Antenna manufacturer | Company name    | Pulse                                                                                                         |
|                      | Address         | 99 Huo Ju Road, Suzhou New District SND Hi-Tech industrial Park<br>Suzhou 215009, Jiangsu Province, P.R.China |
| Test location        | Company name    | Pulse                                                                                                         |
|                      | Address         | No.51, Jing 6th Road, N.E.P.Z., Kaohsiung 81170, Taiwan                                                       |
| Test Personnel       | Name(Full name) | Mars Tsai                                                                                                     |
|                      | E-mail          | Mars.tsai@yageo.com                                                                                           |
|                      | Tel/Mobile      | T: +886 7 9618999                                                                                             |
| Testing date         | 2025/11/04      |                                                                                                               |

|                                       |      |                       |
|---------------------------------------|------|-----------------------|
| Antenna Part number                   | Main | DC330033J00 (TZ3267D) |
|                                       | Aux  | DC330033J10 (TZ3267E) |
| Antenna type (ex: PIFA, Dipole...etc) | PIFA |                       |

| Antenna Peak gain w/ cable loss (dBi)* |                           |                        |                        |                        |                        |                        |                        |                        |                        |                         |
|----------------------------------------|---------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
|                                        | 2.4GHz<br>2400-2483.5 MHz | 5.2GHz<br>5150-5250MHz | 5.3GHz<br>5250-5350MHz | 5.6GHz<br>5470-5725MHz | 5.8GHz<br>5725-5850MHz | 5.9GHz<br>5850-5895MHz | 6.2GHz<br>5925-6425MHz | 6.5GHz<br>6425-6525MHz | 6.7GHz<br>6525-6875MHz | 7.0 GHz<br>6875-7125MHz |
| Main                                   | 1.26                      | 2.82                   | 2.97                   | 2.76                   | 1.94                   | 1.68                   | 2.43                   | 1.51                   | 2.41                   | 2.16                    |
| Aux                                    | 2.44                      | 1.93                   | 1.93                   | 2.47                   | 2.47                   | 1.70                   | 2.50                   | 1.06                   | 2.83                   | 3.68                    |

| Cable Assembly Part Number and Information |               |                  |                    |                |                |
|--------------------------------------------|---------------|------------------|--------------------|----------------|----------------|
|                                            | Cable PN      | Cable length(mm) | Cable diameter(mm) | Impedance(ohm) | Connector type |
| Main                                       | SY113L/50-001 | 256              | 1.13               | 50             | I-PEX          |
| Aux                                        | SY113L/50-001 | 332              | 1.13               | 50             | I-PEX          |

\* 3D Antenna Peak Gain required being test in system basis.

| Cable loss (dBi) |                                  |                               |                               |                               |                               |                               |                               |                               |                               |                                |
|------------------|----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|
|                  | <b>2.4GHz</b><br>2400-2483.5 MHz | <b>5.2GHz</b><br>5150-5250MHz | <b>5.3GHz</b><br>5250-5350MHz | <b>5.6GHz</b><br>5470-5725MHz | <b>5.8GHz</b><br>5725-5850MHz | <b>5.9GHz</b><br>5850-5895MHz | <b>6.2GHz</b><br>5925-6425MHz | <b>6.5GHz</b><br>6425-6525MHz | <b>6.7GHz</b><br>6525-6875MHz | <b>7.0 GHz</b><br>6875-7125MHz |
| Main             | 0.77                             | 1.02                          | 1.03                          | 1.08                          | 1.08                          | 1.09                          | 1.14                          | 1.15                          | 1.18                          | 1.20                           |
| Aux              | 1.00                             | 1.33                          | 1.34                          | 1.40                          | 1.40                          | 1.41                          | 1.48                          | 1.49                          | 1.54                          | 1.56                           |

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## 1. Intel Reference Gain and Type

| Antenna Peak gain w/ cable loss (dBi) |                         |                                  |                               |                               |                               |                               |                               |                               |                               |                               |                                |
|---------------------------------------|-------------------------|----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|
| Band/Frequency                        |                         | <b>2.4GHz</b><br>2400-2483.5 MHz | <b>5.2GHz</b><br>5150-5250MHz | <b>5.3GHz</b><br>5250-5350MHz | <b>5.6GHz</b><br>5470-5725MHz | <b>5.8GHz</b><br>5725-5850MHz | <b>5.9GHz</b><br>5850-5895MHz | <b>6.2GHz</b><br>5925-6425MHz | <b>6.5GHz</b><br>6425-6525MHz | <b>6.7GHz</b><br>6525-6875MHz | <b>7.0 GHz</b><br>6875-7125MHz |
| Design                                | EU/UK                   | 3.00                             | 5.00                          | 5.00                          | 5.00                          | 5.00                          | 5.00                          | 5.00                          | 5.00                          | 5.00                          | 5.00                           |
| PIFA                                  | For WiFi 6E and earlier | 3.24                             | 3.64                          | 3.73                          | 4.77                          | 4.97                          | 4.72                          | 4.83                          | 4.30                          | 5.37                          | 5.59                           |
|                                       | From WiFi 7             | 2.95                             | 5.11                          | 4.55                          | 5.15                          | 5.13                          | 4.45                          | 5.02                          | 5.02                          | 4.96                          | 4.96                           |
| Dipole                                | For WiFi 6E and earlier | 2.89                             | 2.92                          | 3.19                          | 4.41                          | 4.22                          | 4.22                          | 4.83                          | 4.30                          | 4.49                          | 5.34                           |
|                                       | From WiFi 7             | 2.95                             | 4.03                          | 4.11                          | 5.15                          | 5.13                          | 4.45                          | 5.02                          | 4.71                          | 4.49                          | 4.96                           |
| Monopole                              | From WiFi 7             | 2.83                             | 4.57                          | 4.44                          | 4.95                          | 4.95                          | 4.43                          | 4.87                          | 4.91                          | 4.91                          | 4.79                           |

### 3D Peak Antenna gain should be equal or greater than -2 dBi

If a host integrator plans to use a lower gain antenna of the same type, additional CBP(FCC)/EDT(EU) testing need to be performed while the module is installed in the host.

## 2. Document Revision History

| Revision # | Revision Details | Issued Date |
|------------|------------------|-------------|
| Rev. 00    | First Issue      |             |

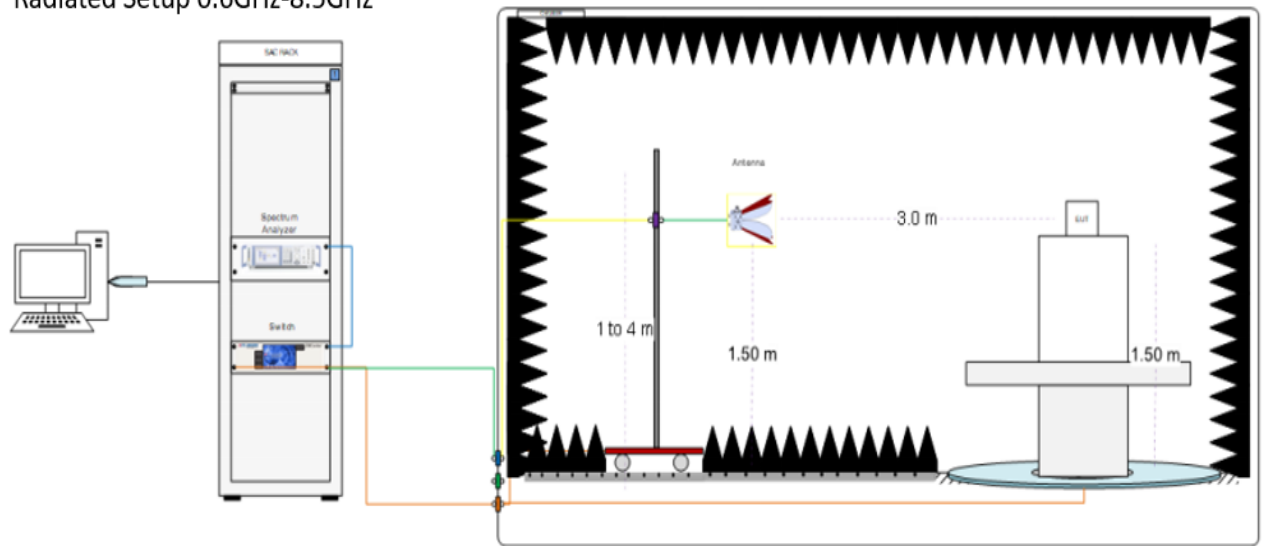
3. Test & System Description

3.1 Measurement Method and System

This test report is prepared for host antenna testing under a Full Anechoic Chamber.

3.2 Test setup

Radiated Setup 0.6GHz-8.5GHz



3.3 Equipment list

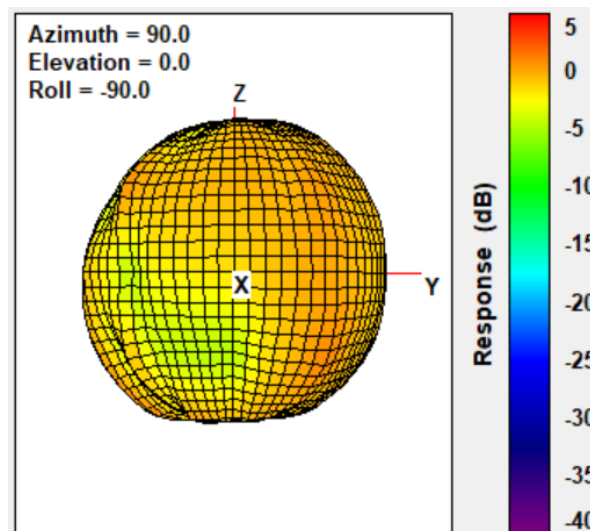
| Radiated Setup #1   |                             |            |                                  |              |            |                          |
|---------------------|-----------------------------|------------|----------------------------------|--------------|------------|--------------------------|
| ID#                 | Device                      | Type/Model | Serial#                          | Manufactuter | Cal. Date  | Estimated Next Cal. Date |
| 1                   | Anechoic Chamber            | AMS8500    | -                                | ETS-Lindgren | 2025-07-13 | 2026-07-13               |
| 2                   | Turn Table                  | ETS        | -                                | ETS-Lindgren | N/A        | N/A                      |
| 3                   | Switch & Positioning system | 2090       | -                                | ETS-Lindgren | N/A        | N/A                      |
| 4                   | Horn Antenna                | 3164-08    | 99210                            | ETS-Lindgren | N/A        | N/A                      |
| 5                   | Network Analyzer            | E5071C     | MY46103999                       | Agilent      | 2025-07-13 | 2026-07-13               |
| 6                   | Commercial test software    | EMQuest    | Version 1.14 Build 10265 SN:1156 | ETS-Lindgren | 2025-07-13 | 2026-07-13               |
| 7                   | Test Operator               | Mars Tsai  |                                  | Pulse        | 2025/11/4  |                          |
| N/A: Not Applicable |                             |            |                                  |              |            |                          |

#### 4. Radiation characteristics of antenna loaded in Host Platform

##### Main Antenna

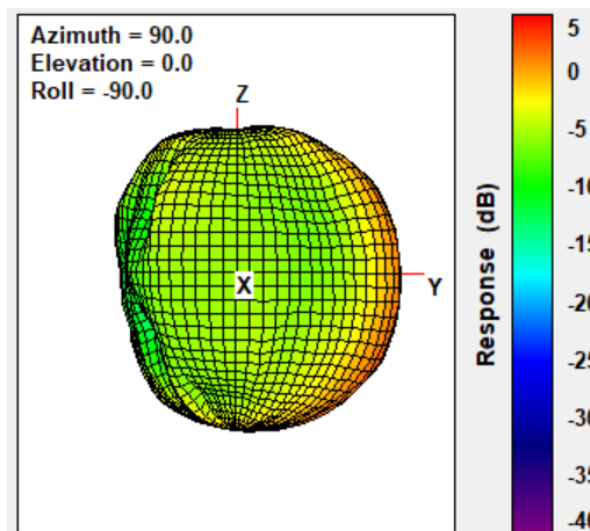
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 2400-2483.5     | 1.26                          |



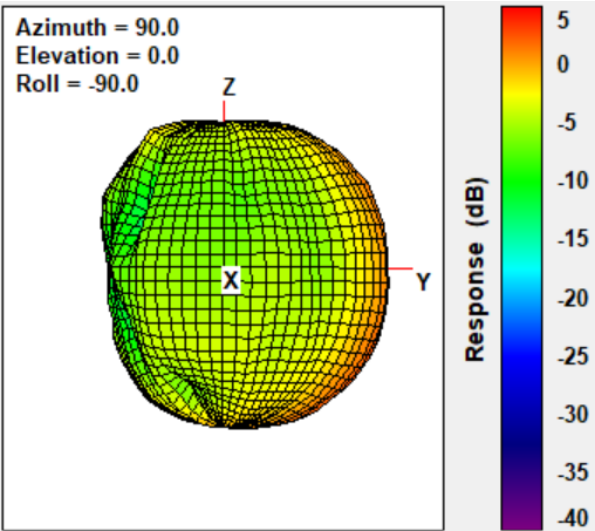
Max Antenna 3D Radiation Pattern 5150-5250 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5150-5250       | 2.82                          |



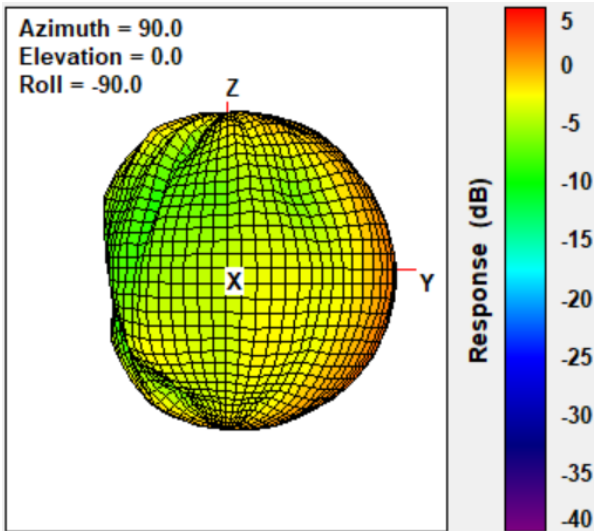
Max Antenna 3D Radiation Pattern 5250-5350 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5250-5350       | 2.97                          |



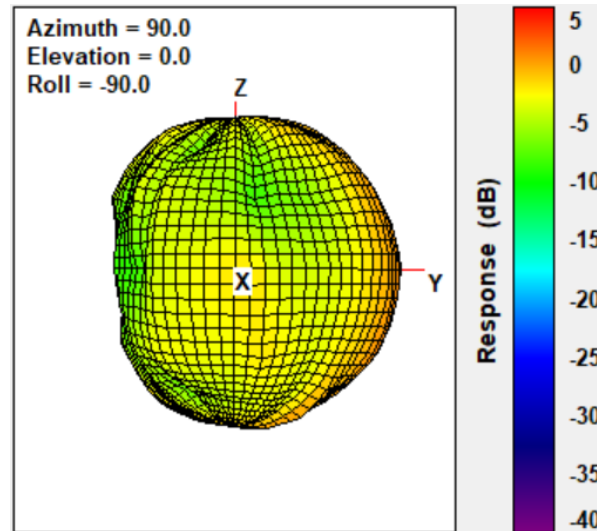
Max Antenna 3D Radiation Pattern 5470-5725 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5470-5725       | 2.76                          |



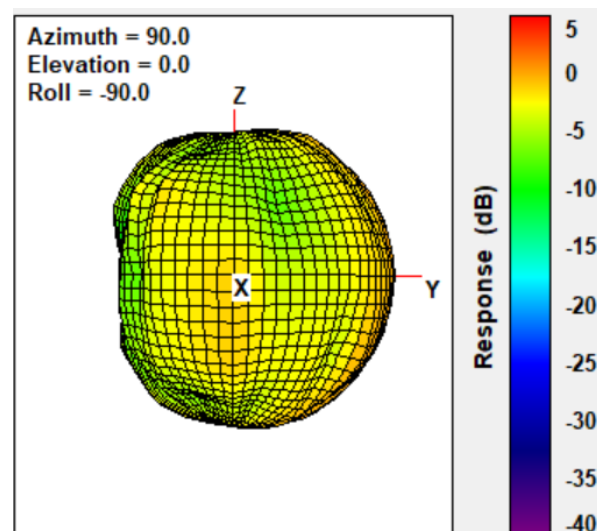
## Max Antenna 3D Radiation Pattern 5725-5850 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5725-5850       | 1.94                          |



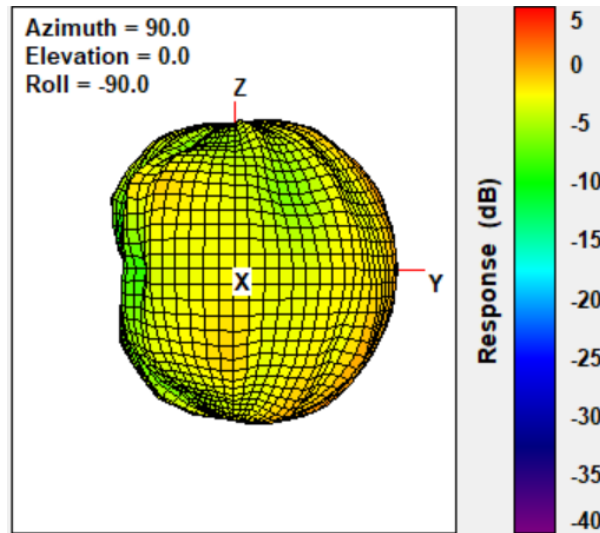
## Max Antenna 3D Radiation Pattern 5850-5895 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5850-5895       | 1.68                          |



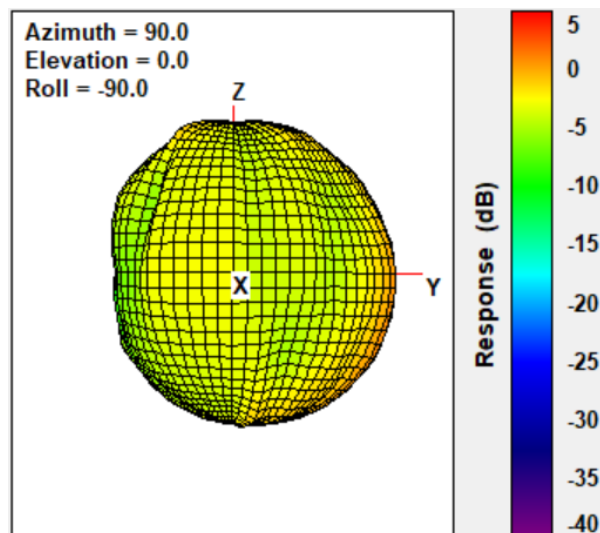
## Max Antenna 3D Radiation Pattern 5925-6425 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5925-6425       | 2.43                          |



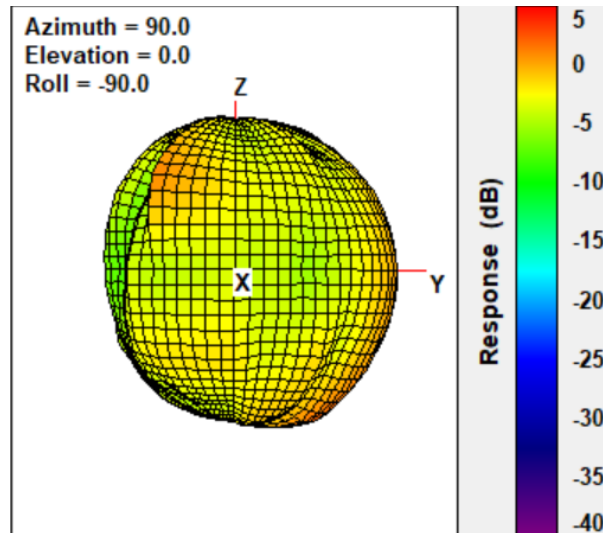
## Max Antenna 3D Radiation Pattern 6425-6525 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6425-6525       | 1.51                          |



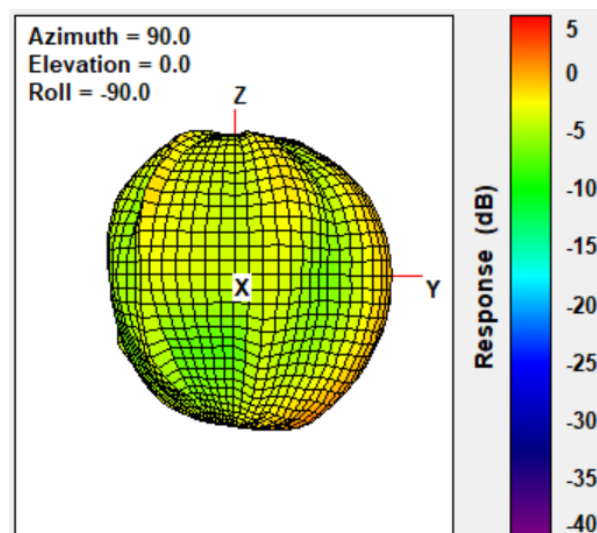
## Max Antenna 3D Radiation Pattern 6525-6875 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6525-6875       | 2.41                          |



## Max Antenna 3D Radiation Pattern 6875-7125 MHz

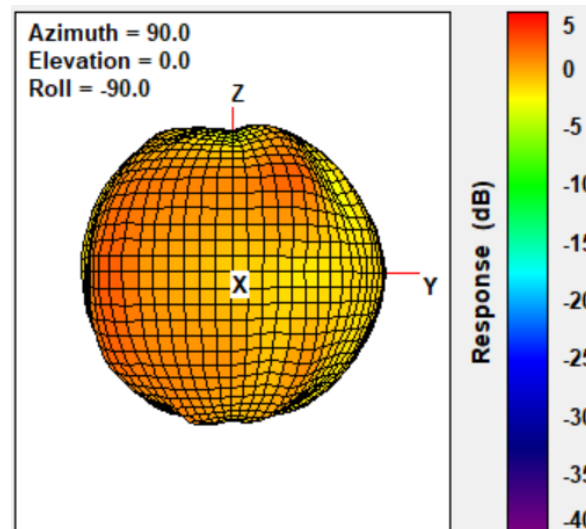
| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6875-7125       | 2.16                          |



## Auxiliary Antenna

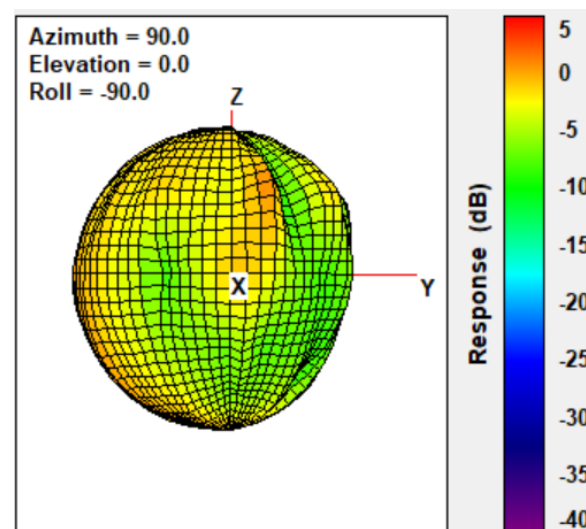
### Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 2400-2483.5     | 2.44                          |



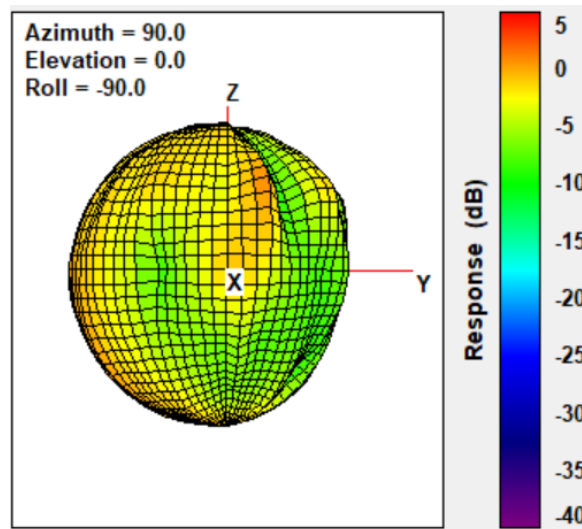
### Max Antenna 3D Radiation Pattern 5150-5250 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5150-5250       | 1.93                          |



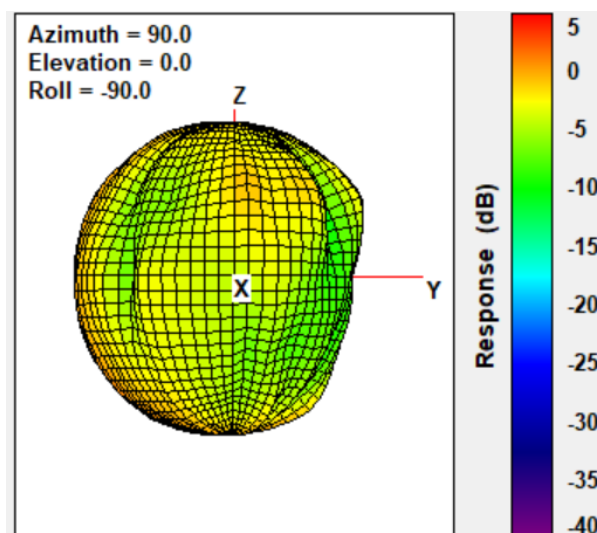
## Max Antenna 3D Radiation Pattern 5250-5350 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5250-5350       | 1.93                          |



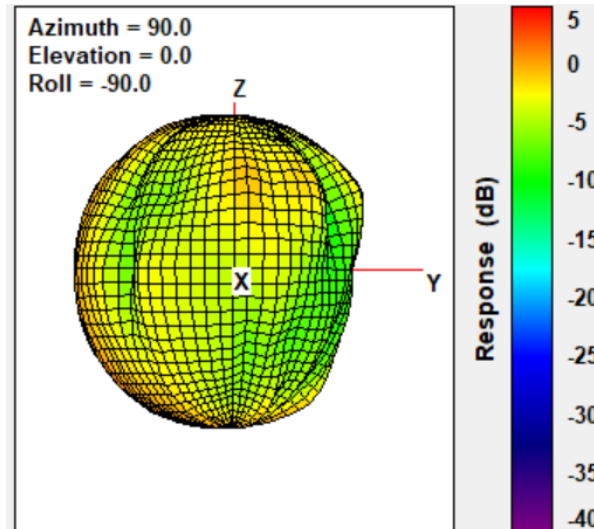
## Max Antenna 3D Radiation Pattern 5470-5725 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5470-5725       | 2.47                          |



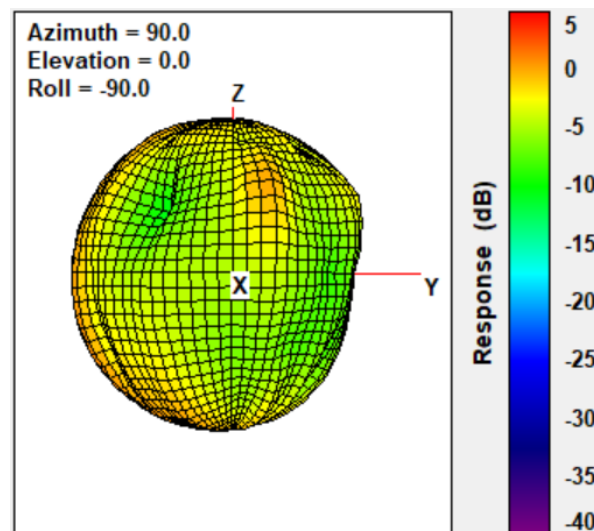
## Max Antenna 3D Radiation Pattern 5725-5850 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5725-5850       | 2.47                          |



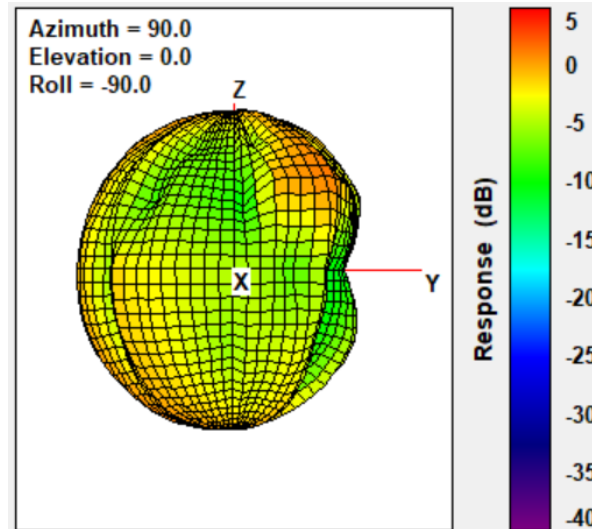
## Max Antenna 3D Radiation Pattern 5850-5895 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5850-5895       | 1.70                          |



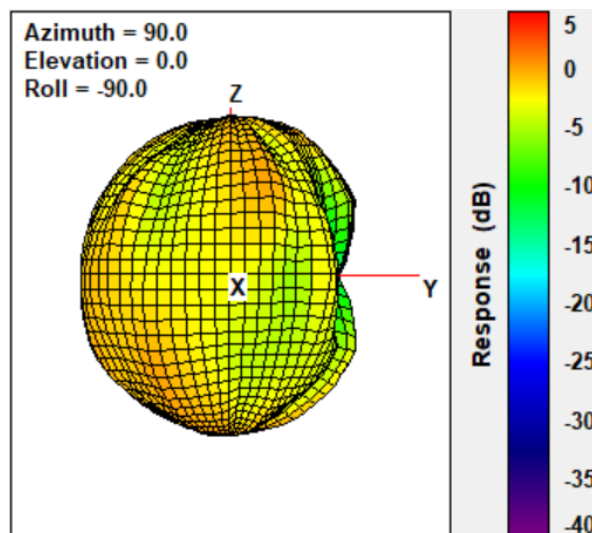
## Max Antenna 3D Radiation Pattern 5925-6425 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 5925-6425       | 2.50                          |



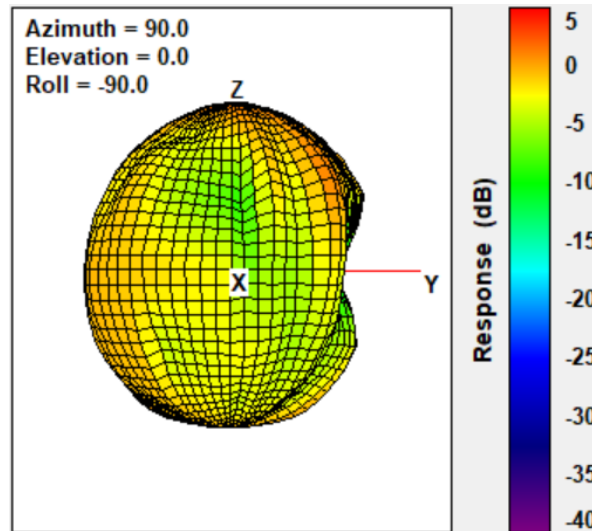
## Max Antenna 3D Radiation Pattern 6425-6525 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6425-6525       | 1.06                          |



## Max Antenna 3D Radiation Pattern 6525-6875 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6525-6875       | 2.83                          |



## Max Antenna 3D Radiation Pattern 6875-7125 MHz

| Frequency (MHz) | Peak Gain w/ Cable Loss (dBi) |
|-----------------|-------------------------------|
| 6875-7125       | 3.68                          |

